

CARIBBEAN REGIONAL TRAINING MANUAL

SOLID WASTE AND WASTEWATER MANAGEMENT FOR THE TOURISM INDUSTRY



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FOREWORD

In 1983, the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region, the Cartagena Convention, was adopted and serves as the legal framework for the Caribbean Environment Programme. It is the only comprehensive environmental umbrella treaty for the region. Two Protocols have been adopted on specific aspects of environmental management: the **Protocol Concerning Cooperation in Combatting Oil Spills** and the **Protocol Concerning Specially Protected Areas and Wildlife**. A third Protocol Concerning Land-based Sources of Marine Pollution is under development.

The Regional Programme for Specially Protected Areas and Wildlife in the Wider Caribbean Region (SPAW) was designed to implement the provisions and requirements of the SPAW Protocol. In keeping with the objective and spirit of the SPAW Programme, the Caribbean Environment Programme (CEP) embarked on a new but integral component of the Programme - the Caribbean Environment Network (CEN) Project - aimed at improving environmental quality and the conservation of natural resources of the coastal and marine environment.

The CEN Project focused on reducing environmental impacts by tourism, given the importance and scope of the industry in the Wider Caribbean and its close linkages with various marine and coastal habitats in the region. It was designed in response to the Regional Agenda for Action of the International Coral Reef Initiative (ICRI), with the input of relevant partners in the region. This Project was a joint venture with the United States Agency for International Development (USAID) in Jamaica as the main donor agency and counted with the support of a Technical Consultative Committee established with key agencies in the region including: British Development Division (BDD/ODA), Caribbean Tourism Organization (CTO), Caribbean Development Bank (CDB), French Cooperation Division, Inter-American Development Bank (IDB), Pan-American Health Organization (PAHO), University of the West Indies- Centre for Marine Sciences, United Nations Development Programme (UNDP) and the World Bank.

This Manual is one in a series of three products emanating from the CEN's Training Programme. They were developed and implemented to fill gaps in knowledge related to environmental aspects of tourism and the marine environment in three major areas: Solid and Wastewater Management, Design and Siting of Tourism Facilities, and Integrated Coastal Area Management.

The above areas addressed by the Training Programme evolved mainly from a Training Needs Assessment commissioned by UNEP to the Consortium of Caribbean Universities for Natural Resource Management (CCUNRM), and a report prepared by the Panos Institute on Improving Training and Public Awareness on Caribbean Coastal Tourism. The Training Needs Assessment exercise counted with inputs from a Consultation Meeting organised by CCUNRM (Puerto Rico, 22-23 October 1996) and a survey through questionnaires sent to a wide variety of stakeholders in the region based on a set of criteria including experiences in education, tourism and marine environment issues. Care was taken to include a diversity of Caribbean countries in terms of size, language and tourism activities.

The overall objective of the Training Programme was to assist in the development of institutional capacity in the region on coastal resources and ecosystem management related to the tourism industry. Seven courses in English and Spanish were delivered under the CEN Project with over 100 participants from the Dutch, English, French and Spanish Caribbean, representing 28 countries (including territories and dependencies) in the region. Participants also represented a cross-section of public, private and academic institutions involved in different aspects of tourism and coastal environment issues, such as developers, hotel managers, coastal area planners and managers, technical staff from governments and water conservation authorities.

Materials from the Training Courses have been compiled and consolidated to produce this series of Training Manuals, which are hoped to serve as reference materials for wide dissemination and assist in promoting replicability of the training experience throughout the Wider Caribbean.

A number of other regional and international organisations have embarked on programmes to improve environmental practices towards achieving sustainable tourism in the region. It was the goal of the USAID/UNEP CEN Project to contribute to these efforts in support of sustainable use and conservation of coastal zones and resources in the Wider Caribbean region.

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THE MANUAL

OBJECTIVES

This training manual is produced as an instructional tool to assist in human resource strengthening in the development of tourism which is environmentally sustainable in the Wider Caribbean Region. It introduces the concept and presents the current state of understanding and practices for environmentally sound solid waste and wastewater management for the tourism industry. The Manual also gives an overview of the pertinent issues relating to the design and development of environmentally sound waste management programmes for tourist facilities.

The Manual is not intended to serve as a textbook or as authoritative guidelines for the design and development of wastewater treatment or solid waste disposal systems.

TARGET AUDIENCE

This Manual was produced to augment the knowledge of all who are actively involved in the management of solid waste and wastewater in tourist facilities. These include hotel managers and staff, tourism boards, tourism development companies, coastal managers and planners and other levels of stakeholders from community associations to policy decision-makers.

CONTENTS AND USE

The content of the Manual was structured through seven modules, which have been developed around the theme, and are geared towards reducing the potential environmental impacts of the tourism industry on coastal and marine resources in the Wider Caribbean Region. The course product included: "Environmental Management and its importance to Tourism: Solid Waste Management and Wastewater Management."

Module 1: 'The Marine and Coastal Environmental Setting'.

This module gives an overview of the Caribbean marine and coastal environment. It helps to develop a basic understanding of the intricate linkages between the various marine ecosystems. Sources of marine pollution are identified and their impacts examined. Additionally the importance of environmental management on improving business opportunities in Caribbean tourism is highlighted with particular emphasis on the benefits of 'greening' hotels.

Module 2: 'Sources of Potential Marine Pollutants and their Effects'.

This module provides an overview of the major pollutants to the marine environment, their sources and potential impacts. It examines the role of tourism on these impacts and some of the measures that can be taken to reduce this problem.

Module 3: 'Saving the Environment or Saving Business'.

The overall benefits for hotels, visitors and the industry in general when implementing environmental practices at tourist facilities are examined in this module.

Module 4: 'An Introduction to Solid Waste Management'.

In this module the different types of solid waste generated within the region are defined and categorised with a review of the current waste management practice. The impacts of poor solid waste disposal practices are outlined with suggestions for corrective action.

Module 5: 'Management and Disposal Options for Solid Waste'.

This module reviews the various management and disposal options for solid waste, including general concepts and practices.

Module 6: 'An Introduction to Wastewater Management'.

This module provides information on the sources, characteristics and impacts of wastewater in the region. The module discusses the importance of treating wastewater with an emphasis on health and environmental issues. Additionally appropriate disposal and reuse options are also presented.

Module 7: 'Methods for the Treatment and Disposal of Wastewater'.

In this module wastewater treatment methods and technology are introduced, including the factors to be considered when selecting a specific method.

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